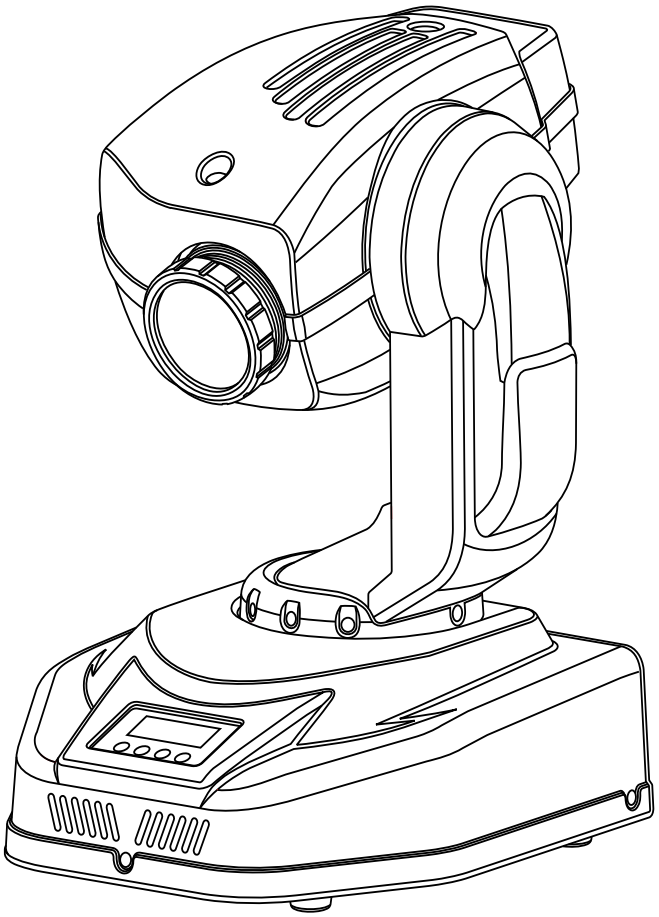
COLOR SPOT 150

USER MANUAL



Version 1.0

© Copyright

Keep this manual for future needs ! **Reproduction prohibited !**

COLOR SPOT 150

Table of contents

1. Safety instructions 3
2.Operating determinations 4
3.Description of the device 5
4.Installation 6
4.1Fitting/Exchanging the lamp 6
4.2Lamp adjustment 6
4.3 Inserting/Exchanging rotating gobos 7
4.4 Rigging 8
4.5 Connection to the mains 10
4.6 DMX- 512 connection, master/slave connection 11
5. DMX Protocol-16 bit 12
6. DMX Protocol-8 bit 14
7.Controller mode 16
7.1 DMX addressing 16
7.2 Remotely controllable functions 16
8. Stand - alone mode 17
9. Functions of the control panel 18
9.1 Addressing 18
9.2 Slave control 19
9.3 Fixture informations 19
9.4 Personality options 20
9.5 Test sequences 23
9.6 Stand-alone setting 24
9.7 Reset function 25
9.8 Special functions 25
10. Error and information messages 27
11.Technical specifications 28
12. Maintenance and cleaning 30
13. Appendix 31

CAUTION!
Keep this device away from rain and moisture!
Unplug mains lead before opening the housing!

FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY BEFORE YOU INITIAL START - UP!

1. Safety instructions

Caution ! Be careful with your operations.With a dangerous voltage you can suffer a dangerous electric shock when touching the wires

This device has left our premises in absolutely perfect condition. In order to maintain this condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this manual.

Important:
Damages caused by the disregard of this user manual are not subject to warranty. The dealer will not accept liability for any resulting defects or problems.

If the device has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.

This device falls under protection-class I. The power plug must only be plugged into a protection class I outlet. Never let the power-cord come into contact with other cables! Handle the power-cord and all connections with the mains with particular caution!

Make sure that the available voltage is not higher than stated on the rear panel.

Make sure that the power-cord is never crimped or damaged by sharp edges. Check the device and the power-cord from time to time.

Always disconnect from the mains, when the device is not in use or before cleaning it. Only handle the power-cord by the plug. Never pull out the plug by tugging the power-cord.

During the initial start-up some smoke or smell may arise. This is a normal process and does not necessarily mean that the device is defective.

Caution: During the operation, the housing becomes very hot.

Do not switch the device on and off in short intervals as this would reduce the lamp's life.

HEALTH HAZARD!
Never look directly into the light source,as sensitive persons may suffer an epileptic shock
(especially meant for epileptics) !

Please consider that damages caused by manual modifications to the device are not subject to warranty.

Keep away children and amateurs !

English

2.Operating determinations

This device is a moving-head spot for creating decorative effects and was designed for indoor use only.

This device is designed for professional use, e.g. on stages, in discotheques, theatres etc.

Lighting effects are not designed for permanent operation. Consistent operation breaks will ensure that the device will serve you for a long time without defects.

Never run the device without lamp!

Do not shake the device. Avoid brute force when installing or operating the device.
Never lift the fixture by holding it at the projector-head, as the mechanics may be damaged. Always hold the

fixture at the transport handles.

When choosing the installation-spot, please make sure that the device is not exposed to extreme heat, moisture or dust. There should not be any cables lying around. You endanger your own and the safety of others!

The minimum distance between light-output and the illuminated surface must be more than 0,8 meter.

Make sure that the area below the installation place is blocked when rigging, derigging or servicing the fixture.

Always fix the fixture with an appropriate safety-rope. Fix the safety-rope at the correct holes only.

Only operate the fixture after having checked that the housing is firmly closed and all screws are tightly fastened.

The lamp must never be ignited if the objective-lens or any housing-cover is open, as discharge lamps may explose .

The maximum ambient temperature t_a must never be exceeded.

CAUTION!
The lens has to be replaced when it is obviously damaged,
so that its function is impaired, e. g. due to cracks or deep scratches!

Operate the device only after having familiarized with its functions. Do not permit operation by persons not qualified for operating the device. Most damages are the result of unprofessional operation!

CAUTION!
The lamp has to be replaced when it is damaged
or deformed due to the heat!

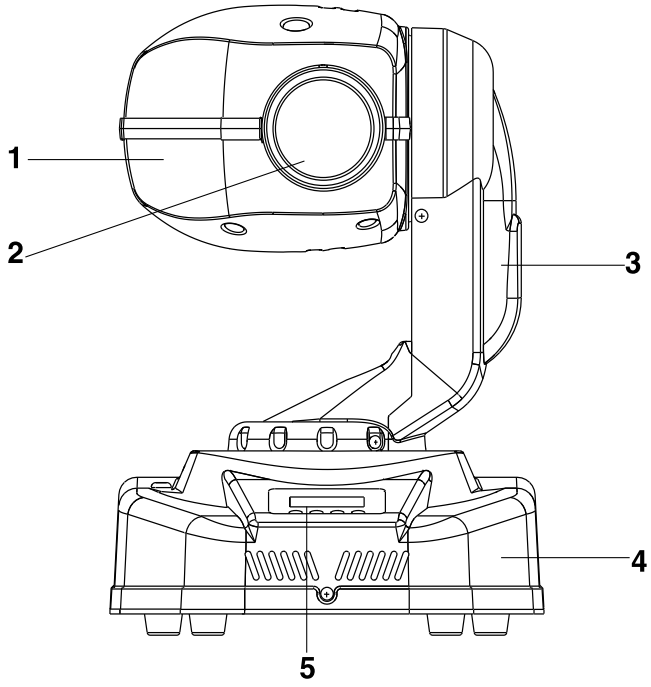
Please use the original packaging if the device is to be transported.

Please consider that unauthorized modifications on the device are forbidden due to safety reasons!

Never remove the serial barcode from the device as this would make the guarantee void.

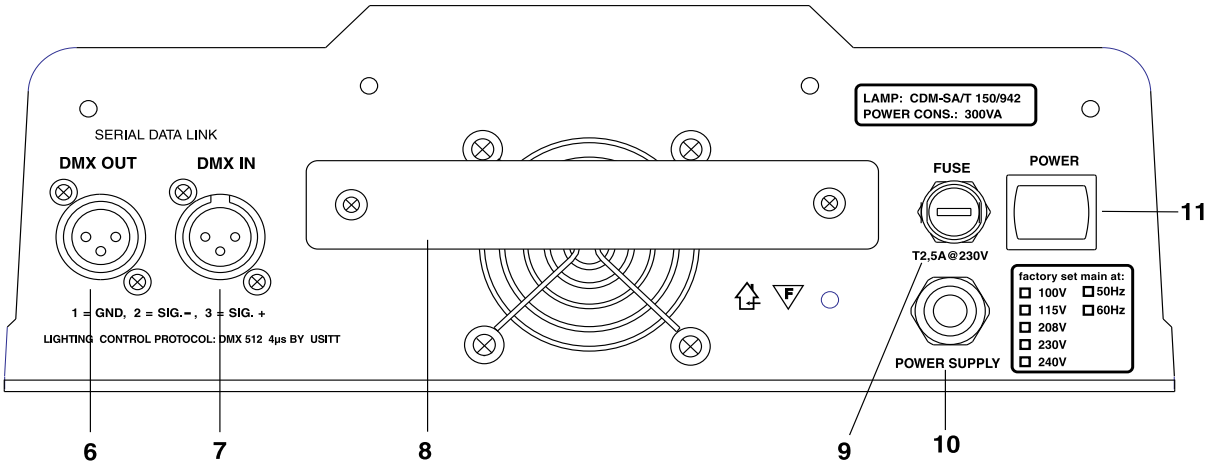
If this device will be operated in any way different to the one described in this manual, the product may suffer damages and the guarantee becomes void. Furthermore, any other operation may lead to dangers like short-circuit, burns, electric shock, lamp explosion, crash etc.

3.Description of the device



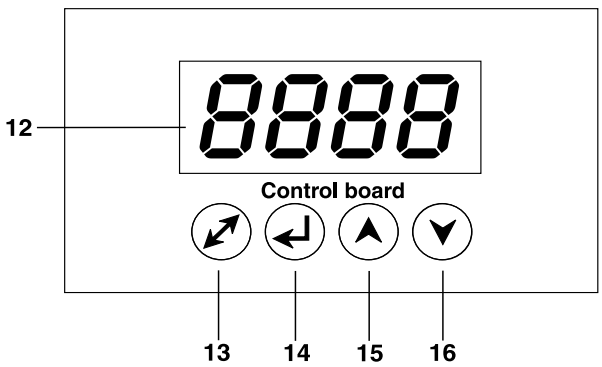
1 - Projector-head
2 - Objective
3 - Arm
4 - Base
5 - Control panel

Rear panel of the base



6 - DMX output
7 - DMX input
8 - Transport handle
9 - Fuseholder
10 - Powercord
11 - Power-switch

Control panel

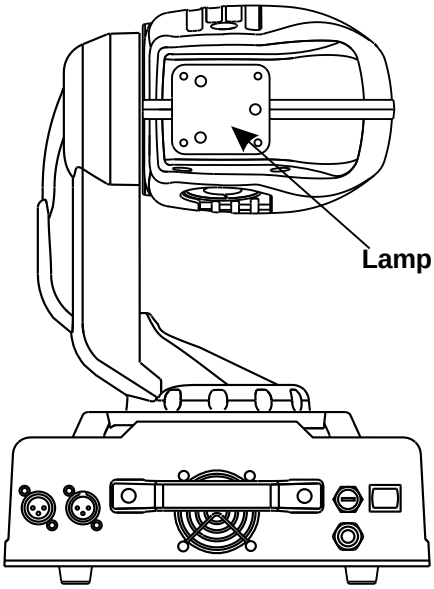


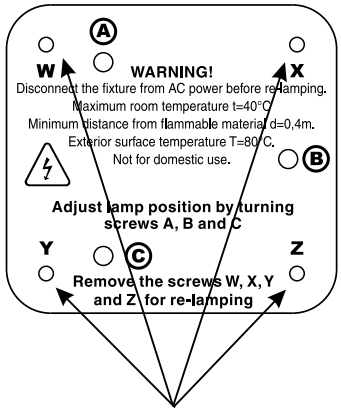
12 - Display
13 - Mode-button
14 - Enter-button
15 - Up-button
16 - Down-button

4.Installation

4.1Fitting/Exchanging the lamp

DANGER !
Install the lamp with the device switched off only.
Unplug from mains before !





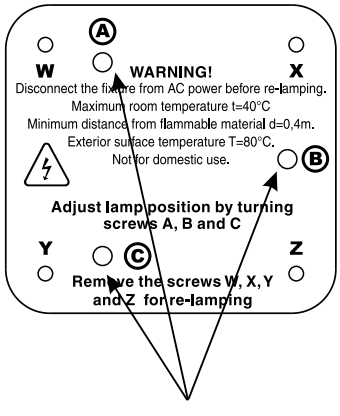
screws "X,Y,Z W"

To insert the lamp CDM-SA/T 150/942 open the small lamp cover at the rear of the head (see the drawing) by loosening the 4 screws **„W, X,Y, Z,"** on the lamp cover.
Gently pull out the lamp assembly.
If changing the lamp, remove the old lamp from the socket. Insert the lamp to the socket.
Do not install a lamp with a higher wattage! A lamp like this generates temperatures the device is not designed for.
Damages caused by non-observance are not subject to warranty. Please follow the lamp manufacturer‘s notes!
Do not touch the glass-bulb bare hand during the installation! Make sure that the lamp is installed tightly into the lamp holder system.
Reinsert the lamp assembly and tighten 4 screws again.
Before striking the lamp, reset the **"LAti/rSEt"** and **"LASt/rSEt"**counters in the "**InFO**" menu on the control panel, by pressing the **[▲]** and **[▼]** buttons in one time and then confirming with the **[↵]** button.

Do not operate this fixture with opened housing-cover!

4.2Lamp adjustment

The COLOR SPOT 150 lampholder is aligned at the factory. Due to differences between lamps, fine adjustment may improve light performance.
Strike the lamp, cancel all effects, open the shutter and set the dimmer intensity onto 100 % and focus the light on a flat surface (wall) or use function "**LAAd**" in the **Special functions** .
Center the hot-spot (the brightest part of the beam) using the 3 adjustment screws **„A, B, C"**. Turn one screw at a time to drag the hot-spot, diagonally across the projected image. If you cannot detect a hot -spot, adjust the lamp until the light is even.



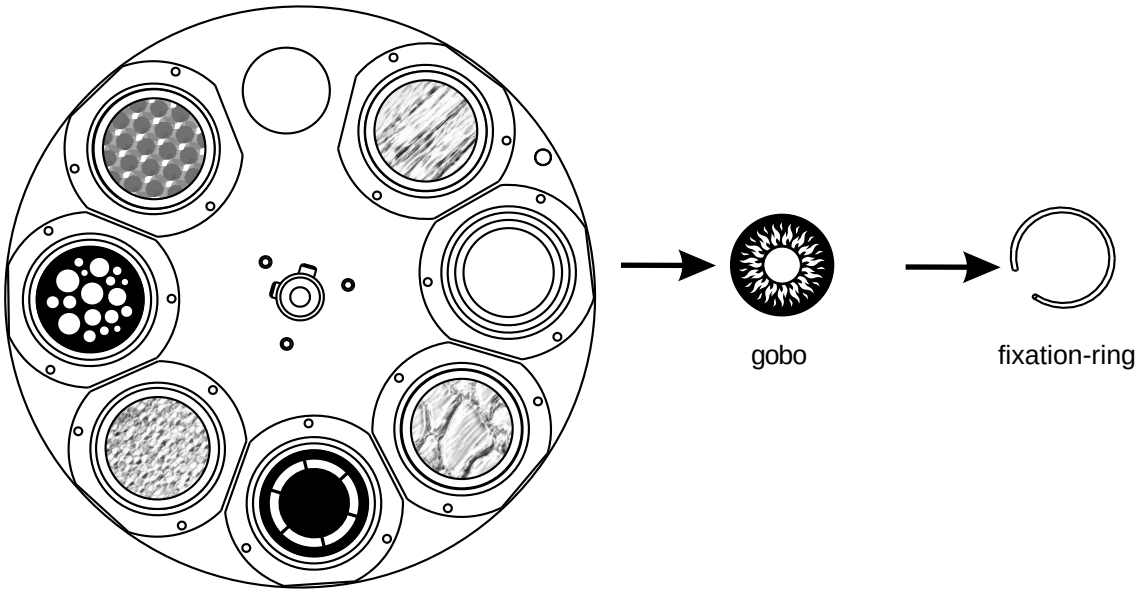
screws "A, B, C"

To reduce a hot-spot, pull the lamp in by turning all three screws **„A, B, C"** clockwise 1/4-turn at a time until the light is evenly distributed.
If the light is brighter around the edge than it is in the center, or if light output is low, the lamp is too far back in the reflector. „Push" the lamp out by turning the screws **„A, B, C"** counterclockwise 1/4-turn at a time the light is bright and evenly distributed.

4.3 Inserting/Exchanging rotating gobos

DANGER!
Install the gobos with the device switched off only.
Unplug from mains before!

To insert the gobos open the top cover of the head by loosening the 2 screws .
If you wish to use other forms and patterns as the standard-gobos, or if gobos are to be exchanged,remove the fixation-ring with an appropriate tool. Remove the gobo and insert the new gobo. Press the fixation-ring together and insert it in front of the gobo.



CAUTION!
Never unscrew the screws of the rotating gobo
as the ball bearing will otherwise be opened!

4.4 Rigging

DANGER TO LIFE!
Please consider the respective national norms during the installation!
Theinstallation must only be carried out by an authorized dealer!

The installation of the projector has to be built and constructed in a way that it can hold 10 times the weight for 1 hour without any harming deformation.

The installation must always be secured with a secondary safety attachment, e.g. an appropriate catch net. This secondary safety attachment must be constructed in a way that no part of the installation can fall down if the main attachment fails.

When rigging, derigging or servicing the fixture staying in the area below the installation place, on bridges, under high working places and other endangered areas is forbidden.

The operator has to make sure that safety-relating and machine-technical installations are approved by an expert before taking into operation for the first time and after changes before taking into operation another time.

The operator has to make sure that safety-relating and machine-technical installations are approved by an expert after every four year in the course of an acceptance test.

The operator has to make sure that safety-relating and machine-technical installations are approved by a skilled person once a year.

The projector should be installed outside areas where persons may walk by or be seated.

IMPORTANT! OVERHEAD RIGGING REQUIRES EXTENSIVE EXPERIENCE, including (but not limited to) calculating working load limits, installation material being used, and periodic safety inspection of all installation material and the projector. If you lack these qualifications, do not attempt the installation yourself, but instead use a professional structural rigger. Improper installation can result in bodily injury and.or damage to property.

The projector has to be installed out of the reach of people.
If the projector shall be lowered from the ceiling or high joists, professional trussing systems have to be used. The projector must never be fixed swinging freely in the room.

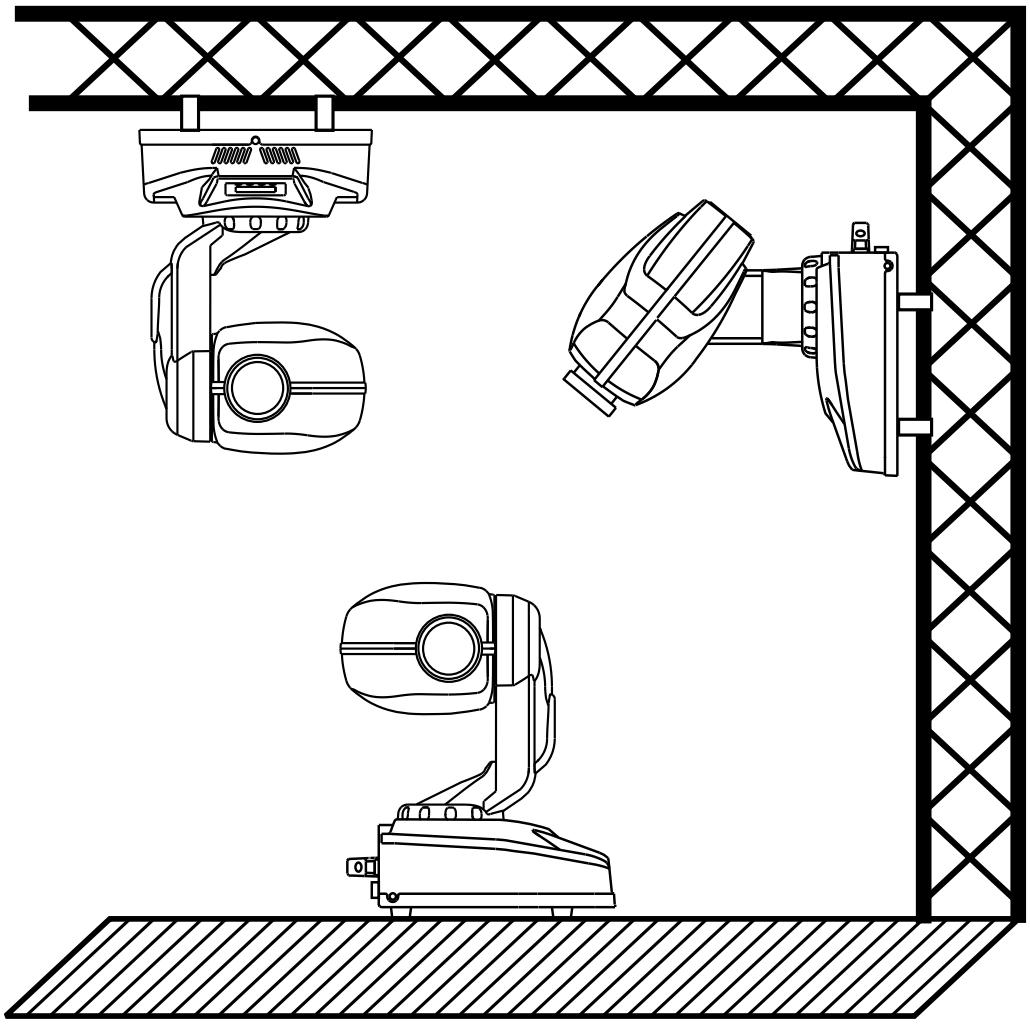
Caution: Projectors may cause severe injuries when crashing down! If you have doubts concerning the safety of a possible installation, do NOT install the projector!

Before rigging make sure that the installation area can hold a minimum point load of 10 times the projector's weight.

Danger of fire !
When installing the device, make sure there is no highly inflammable material (decoration articles, etc.) in between a distance of min. 0,4 m.

CAUTION!
Use 2 appropriate clamps to rig the fixture on the truss.
Follow the instructions mentioned at the bottom of the base.
Make sure that the device is fixed properly! Ensure that the structure (truss) to which you are attaching the fixtures is secure.

The moving-head can be placed directly on the stage floor or rigged in any orientation on a truss without altering its operation characteristics .
There are two possibility how to fix the COLOR SPOT 150 on a truss via the Omega holders -see the drawing below.Use the rigging clamps (not included) with screws M12.
For overhead use, always install a safety-rope that can hold at least 10 times the weight of the fixture. You must only use safety-ropes with screw-on carabines. Pull the safety-rope through the two apertures on the bottom of the base and over the trussing system etc. Insert the end in the carabine and tighten the fixation screw.

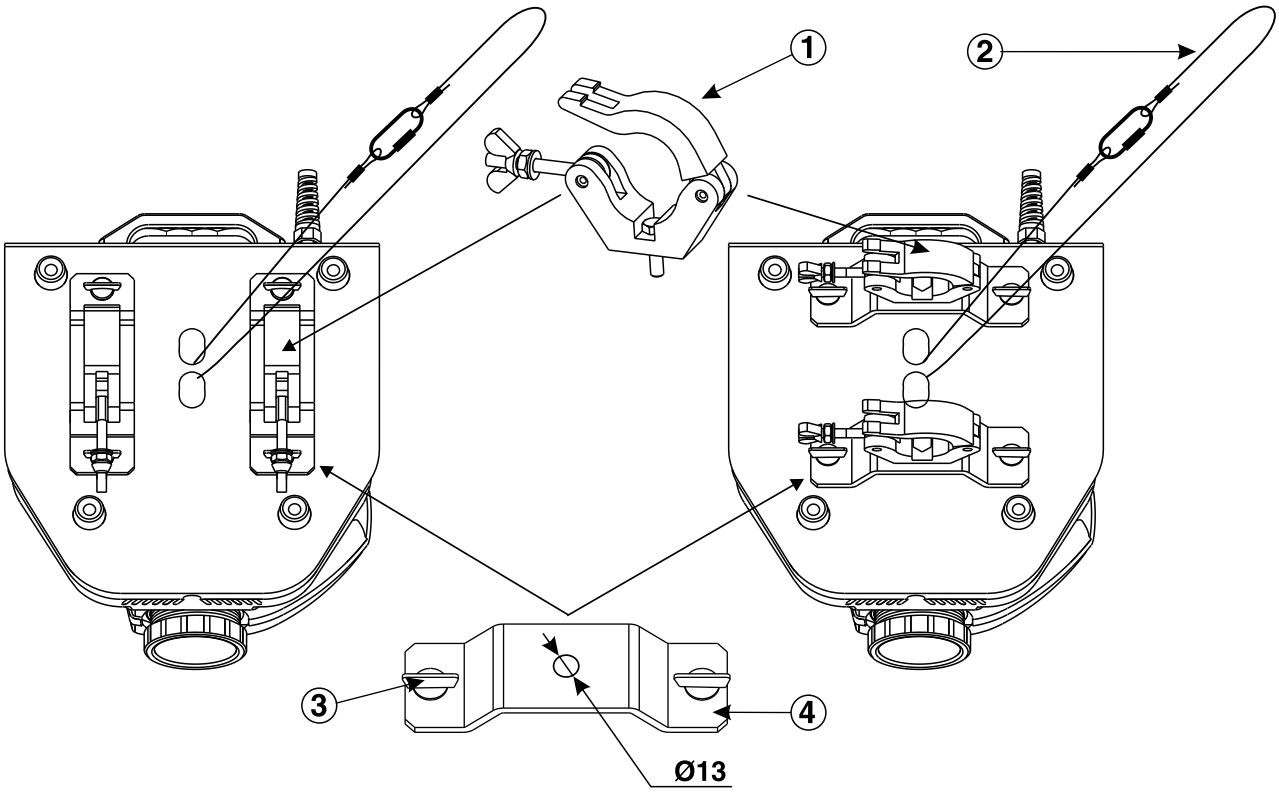


When installing fixtures side-by-side,
avoid illuminating one fixture with another!

DANGER TO LIFE!
Before taking into operation for the first time,the installation has to be approved by an expert!

Fixation via the Omega holders

1. Screw each clamp (1) to the included Omega holders (4) with M12 bolt and nut through the hole in the holder.
2. Insert both quick-lock fasteners (3) into the holes of the base and tighten fully clockwise.Install the second clamp.
3. Fasten the safety-rope (2) through the two apertures on the bottom of the base and over the trussing system.



1-Clamp
2-Safety-rope
3-Quick-lock fastener
4-Omega holder

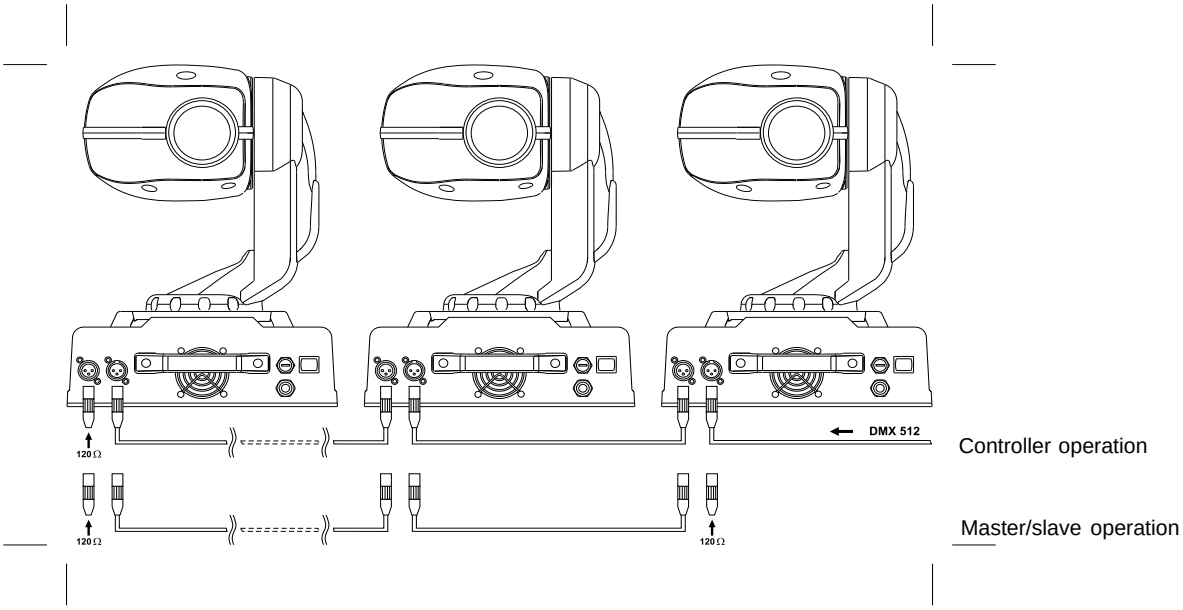
4.5 Connection to the mains

Connect the fixture to the mains with the enclosed power-plug.
The earth has to be connected!

The occupation of the connection-cables is as follows:

Cable	Pin	International
Brown	Live	L
Light blue	Neutral	N
Yellow/Green	Earth	⏚

4.6 DMX- 512 connection, master/slave connection

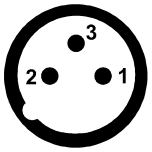


The wires must not come into contact with each other, otherwise the fixtures will not work at all, or will not work properly.

Only use a stereo shielded cable and 3-pin XLR-plugs and connectors in order to connect the controller with the fixture or one fixture with another.

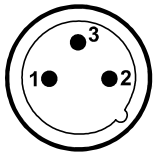
Occupation of the XLR-connection:

DMX - output
XLR mounting-socket:



1 - Ground
2 - Signal (-)
3 - Signal (+)

DMX-input
XLR mounting-plug:



1 - Ground
2 - Signal (-)
3 - Signal (+)

Building a serial DMX-chain:
If you are using the standard controllers, you can connect the DMX-output of the controller directly with the DMX-input of the first fixture in the DMX-chain. If you wish to connect DMX-controllers with other XLR-outputs, you need to use adapter-cables.
Connect the DMX-output of the first fixture in the DMX-chain with the DMX-input of the next fixture. Always connect output with the input of the next fixture until all fixtures are connected.
Caution: At the last fixture, the DMX-cable has to be terminated with a terminator. Solder a 120 Ohm resistor between Signal (–) and Signal (+) into a 3-pin XLR-plug and plug it in the DMX-output of the last fixture.

Building a master/slave-chain:
Connect the DMX-output of the master fixture in the data-chain with the DMX-input of the first slave. Always connect output with the input of the next slave until all slaves are connected (up to 9 fixtures).
Caution: It's necessary to insert the XLR termination plug (with 120 Ohm) into the input of the master fixture and into the output of the last slave fixture in the link in order to ensure proper transmission on the data link.

5. DMX Protocol-16 bit

Mode 1 Channel	Mode 2 Channel	Value	Function	Type of control
1	**1**		**Pan**	
		0-255	Pan movement by 530°	proportional
2	**3**		**Tilt**	
		0-255	Tilt movement by 280°	proportional
3	**2**		**Pan fine**	
		0-255	Fine control of pan movement	proportional
4	**4**		**Tilt fine**	
		0-255	Fine control of tilt movement	proportional
5	**5**		**Speed of PAN/TILT movement**	
		0	Max. speed (tracking mode)	step
		1-249	From max. speed to min.speed (vector mode)	proportional
		250-252	Max. speed(track.mode),black-out while color or gobo changes	step
		253-255	Max. speed(vector mode),black-out while PAN/TILT moving or colour or gobo changes	step
6	**6**		**Colours**	
		0	Open/white	proportional
		10	Turquoise	proportional
		21	Red	proportional
		32	Cyan	proportional
		42	Light green	proportional
		53	Magenta	proportional
		64	Light Blue	proportional
		74	Yellow	proportional
		85	Green	proportional
		96	Pink	proportional
		106	Blue	proportional
		117	Orange	proportional
		128-189	Forwards rainbow effect from fast to slow	proportional
		190-193	No rotation	proportional
		194-255	Backwards rainbow effect from slow to fast	proportional
7	**7**		**Rotating gobos**	
		0-11	Open position (hole)	step
		12-23	Gobo 1	step
		24-35	Gobo 2	step
		36-47	Gobo 3	step
		48-59	Gobo 4	step
		60-71	Gobo 5	step
		72-83	Gobo 6	step
		84-95	Gobo 7	step
		96-235	***Shaking gobos with variable speed***	
		96-115	Gobo 1	proportional
		116-135	Gobo 2	proportional
		136-155	Gobo 3	proportional
		156-175	Gobo 4	proportional
		176-195	Gobo 5	proportional
		196-215	Gobo 6	proportional
		216-235	Gobo 7	proportional
		236-255	Gobo wheel rotation from slow to fast	proportional

Mode 1 Channel	Mode 2 Channel	Value	Function	Type of control
8	**8**		**Rotating gobo rotation**	
		0-127	Gobo rotation	proportional
		128-189	Forwards gobo rotation from fast to slow	proportional
		190-193	No rotation	step
		194-255	Backwards gobo rotation from slow to fast	proportional
9	**9**		**Shutter,Strobe,Reset**	
		0	Shutter closed	step
		1-63	Light intensity from 0 to 100%	proportional
		64-95	Shutter open	step
		96-127	Strobe-effect from slow to fast (max 8 flashes/s)	proportional
		128-139	Reset ,shutter closed	step
		140-159	Shutter closed	step
		160-175	Pulse-effect in sequences with increasing speed	proportional
		176-191	Pulse-effect in sequences with decreasing speed	proportional
		192-223	Random strobe effect with increasing speed	proportional
		224-255	Shutter open	step

6. DMX Protocol-8 bit

Mode 3 Channel	Mode 4 Channel	Value	Function	Type of control
1	**1**		**Pan**	
		0-255	Pan movement by 530°	proportional
2	**2**		**Tilt**	
		0-255	Tilt movement by 280°	proportional
3			**Speed of PAN/TILT movement**	
		0	Max. speed (tracking mode)	step
		1-249	From max. speed to min.speed (vector mode)	proportional
		250-252	Max. speed(track.mode),black-out while color or gobo changes	step
		253-255	Max. speed(vector mode),black-out while PAN/TILT moving or colour or gobo changes	step
4	**3**		**Colours**	
		0	Open/white	proportional
		10	Turquoise	proportional
		21	Red	proportional
		32	Cyan	proportional
		42	Light green	proportional
		53	Magenta	proportional
		64	Light Blue	proportional
		74	Yellow	proportional
		85	Green	proportional
		96	Pink	proportional
		106	Blue	proportional
		117	Orange	proportional
		128-189	Forwards rainbow effect from fast to slow	proportional
		190-193	No rotation	proportional
		194-255	Backwards rainbow effect from slow to fast	proportional
5	**4**		**Rotating gobos**	
		0-11	Open position (hole)	step
		12-23	Gobo 1	step
		24-35	Gobo 2	step
		36-47	Gobo 3	step
		48-59	Gobo 4	step
		60-71	Gobo 5	step
		72-83	Gobo 6	step
		84-95	Gobo 7	step
		96-235	***Shaking gobos with variable speed***	
		96-115	Gobo 1	proportional
		116-135	Gobo 2	proportional
		136-155	Gobo 3	proportional
		156-175	Gobo 4	proportional
		176-195	Gobo 5	proportional
		196-215	Gobo 6	proportional
		216-235	Gobo 7	proportional
		236-255	Gobo wheel rotation from slow to fast	proportional
6	**5**		**Rotating gobo rotation**	
		0-127	Gobo rotation	proportional
		128-189	Forwards gobo rotation from fast to slow	proportional
		190-193	No rotation	step
		194-255	Backwards gobo rotation from slow to fast	proportional

Mode 3 Channel	Mode 4 Channel	Value	Function	Type of control
7	**6**		**Shutter,Strobe,Reset**	
		0-	Shutter closed	step
		1-63	Light intensity from 0 to 100%	proportional
		64-95	Shutter open	step
		96-127	Strobe-effect from slow to fast (max 8 flashes/s)	proportional
		128-139	Reset ,shutter closed	step
		140-159	Shutter closed	step
		160-175	Pulse-effect in sequences with increasing speed	proportional
		176-191	Pulse-effect in sequences with decreasing speed	proportional
		192-223	Random strobe effect with increasing speed	proportional
		224-255	Shutter open	step

The COLOR SPOT 150 can be operated with a controller in **controller mode** or without the controller in **stand-alone mode**.
Both modes are described in the texts below.

7.Controller mode

The fixtures are individually addressed (001-504) on a data link and connected to the controller.The fixtures respond to the DMX signal from the controller.

7.1 DMX addressing

The control panel on the front side of the base allows you to assign the DMX fixture address, which is defined as the first channel from which the COLOR SPOT 150 will respond to the controller.
If you set, for example, the address to channel 5, the COLOR SPOT 150 will use the channel 5 to 13 for control. Please, be sure that you don't have any overlapping channels in order to control each COLOR SPOT 150 correctly and independently from any other fixture on the DMX data link.
If two, three or more COLOR SPOT 150 are addressed similarly, they will work similarly.
For address setting, please refer to the instructions under "Addressing"(menu "**A001"**).

Controlling:

After having addressed all COLOR SPOT 150 , you may now start operating these via your lighting controller.
Note: After switching on, the COLOR SPOT 150 will automatically detect whether DMX 512 data is received or not.If there is no data received at the DMX-input, the display will start to flash **"A001"** with actually set address. This situation can occur if:
- the 3 PIN XLR plug (cable with DMX signal from controller) is not connected with the input of the COLOR SPOT 150
- the controller is switched off or defective, the cable or connector is defective or the signal wires are swap in the input connector.

Note: It's necessary to insert the XLR termination plug (with 120 Ohm) to the last fixture in the link in order to ensure proper transmission on the DMX data link.

7.2 Remotely controllable functions

Colour - wheel

The COLOR SPOT 150 contains a colour wheel with 12 colour positions - 11 of these with dichroic colours and the last one white. The colour-wheel can be positioned between two adjacent colours in any position. It is also possible to rotate the colour- wheel continuously at different speeds("Rainbow effect" in both directions).

Rotating gobo wheel

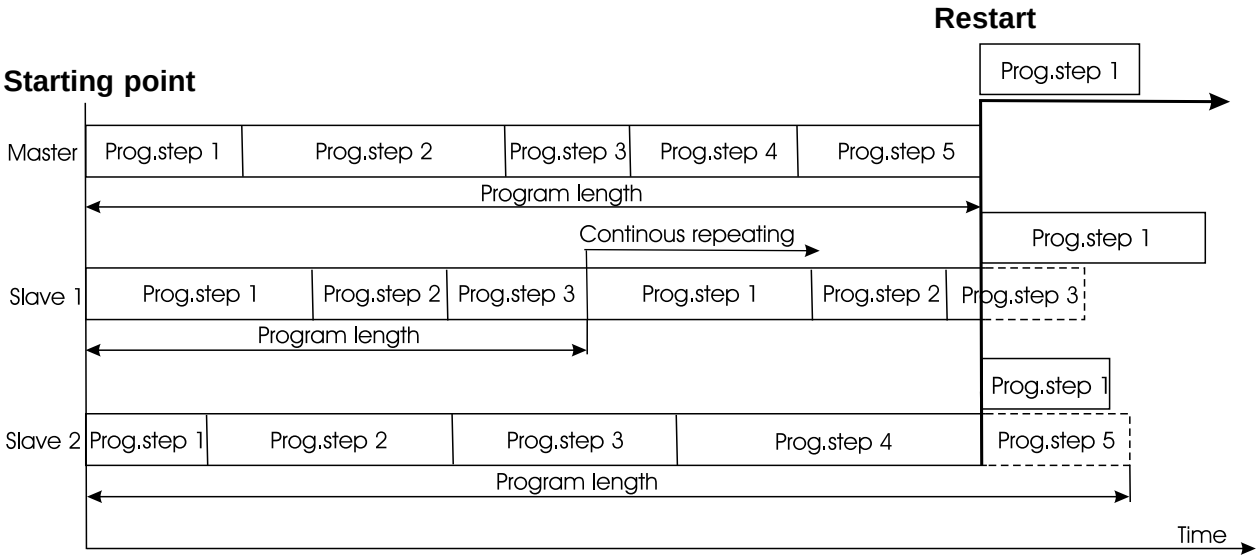
The rotating gobo-wheel includes 3 metal gobos, 3 glass gobos and 1 multicolor dichroic gobo rotating in both directions. All gobos are interchangeable.The metal gobos have an outside diameter of 27 mm and an image diameter of 22,5 mm.The glass and dichroic gobos have an outside diameter of 26,8 mm and an image diameter of 22,5 mm.

Shutter/Dimmer/Strobe

The dimming (0-100%) is provided by the simple mechanical shutter unit. This unit may also be used for strobe effect (1 - 8 flashes per second).

8. Stand - alone mode

The fixtures on a data link are not connected to the controller but can execute pre-set programs which can be different for every fixture.To set the program to be played,see the "Stand-alone setting" **(** menu **"St.AL."**).
"Stand-alone operation" can be applied to the single fixture (the fixture may be set to the master /slave mode or controller mode) or to multiple fixtures operating synchronously.
Synchronous operation of multiple fixtures requires that they must be connected on a data link and one of them is set as a master (master mode) and the rest as the slaves (slave mode).The slaves are assigned to SLA1-SLA9 and on the certain slave address can be connected only one fixture.To set the fixture as the master or slave , see the "Addressing" (menu "**A001"**).
If the master fixture runs a reset or plays test(program) ,all slaves will execute these acts too.
You can't play or edit any programs on the slaves by their control panels if the master is switched on and connected to the master/slave chain.
The master fixture starts simultaneous program start in the other slave fixtures.All fixtures have a definite, synchronized starting point when playing back their programs.The number of running program is the same in all slaves and depends on the master's choice (menu "**St.AL.**").Every fixture runs its program repeatedly ,starting the program step No.1 when requested by the master .
For example:
If the slave fixture has a shorter program length, it will continously repeat its program until the master fixture finishes its own program and restarts its program running (slave 1- prog.step 3 will not be finished).
If the slave fixture has a longer program length, it will restart at prog. step 1 before it completes all its prog.steps (slave 2 - prog.step 5 will not be played)- see the picture bellow.



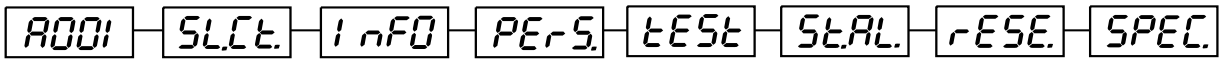
Note: Disconect the fixtures from the DMX controller before master/slave operating ,otherwise data collisions can occur and the fixtures will not work properly!
It's necessary to insert the XLR termination plug (with 120 Ohm) into the input of the master fixture and into the output of the last slave fixture in the data link in order to ensure proper transmission on the data link.

From the master's control panel is possible to control any slave in a master/slave chain.

English

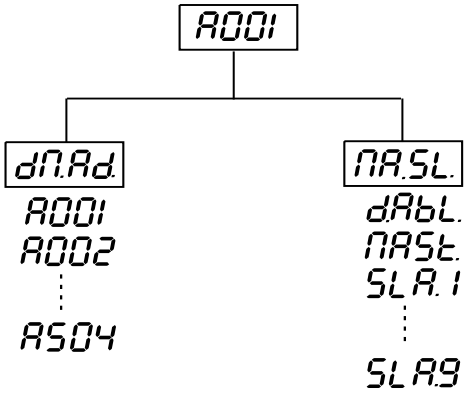
9. Functions of the control panel

The control panel situated on the front side of the base offers several features. You can simply set the DMX address,master/slave mode, read the number of lamp or unit hours, run test, make a reset and also use many functions for setting and service purposes.
The main menu of the control panel is accessed by pressing the **[⇗]** button - press this one so many times until the display shows message **"A001"** (with actually stored address). Browse through the menu by the pressing **[⮝]** or **[⮟]** buttons - the display shows step by step these messages: **A001,SLCt, InFO,PErS,tESt, StAL,rESE, SPEC**. Press **[↵]** if you wish to select one of them. The functions are described in the following sections and the function hierarchy is shown below.



9.1 Addressing

By this menu you can set the DMX address or address the fixture as a master/slave.



- DMX addressing

1. Press the **[⇗]-** button so many times until the display shows message **"A001"** (with actually stored address).
2. Press **[↵]**-button and use the **[⮝]** and **[⮟]** buttons to select"**dM.Ad.**"-menu.
3. Press**[↵]**-button(the letter "A" flashes) and by **[⮝]** and **[⮟]** buttons select required address (001 - 504), press **[↵]**-button to confirm.
4. Select **"M.ASL."**-menu,press**[↵]**-button and use **[⮝]** and **[⮟]** buttons to select "**d.AbL.**"(no master or slave),press **[↵]**-button to confirm.
5. Press the **[⇗]-** button.Choosen address is shown on the display.

If message **"A001"** (with actually stored address) flashes-no DMX data received at the DMX-input.

- Master/slave adressing

1. Press the **[⇗]-** button so many times until the display shows message **"A001"** (with actually stored address).
2. Press **[↵]**-button and use the **[⮝]** and **[⮟]** buttons to select **"MA.SL."**-menu.
3. Press **[↵]**-button(display flashes) and select**"MASt"**(to set the fixture as the master in a chain of multiple fixtures) or **"SLA.1"**-**"SLA.9"** (to set the fixture to be the slave in a chain of multiple fixtures) and press **[↵]** to confirm. If you want address no master or slave, select "**d.AbL.**".
4. Press the **[⇗]-** button.Choosen address is shown on the display.

If message **"MASt."** fast flashes-DMX signal is received at the DMX-input- disconnect DMX controller!

Only one fixture may be the master. Up to the 9 slaves may be connected to the master and on the certain address can be connected only one slave fixture (SLA1-SLA9).

Note: Disconect the fixtures from the DMX controller before master/slave operating ,otherwise data collisions can occur and the fixtures will not work properly!
If the fixture is set as the master and DMX signal is connected to its input,the error massage "MAEr" will appear on its display and the fixture's address will be set to its DMX address in order to respond to DMX signal from the controller.
For example:
The master fixture has this address setting:"dM.Ad."-menu.....**.A010**
"MA.SL."-menu.....**MASt** (is displayed)
The DMX signal is connected to the master fixture.The message **"MAst"** starts fast flashing and after 20s error massage "MA.Er" appears on its display and the fixture automatically will be switched to its DMX address (master address is disabled).
Now the fixture has the address setting: "dM.Ad."-menu.....**A010** ("A010"/" MA.Er"blinks)
"MA.SL."-menu.....**d.AbL.**

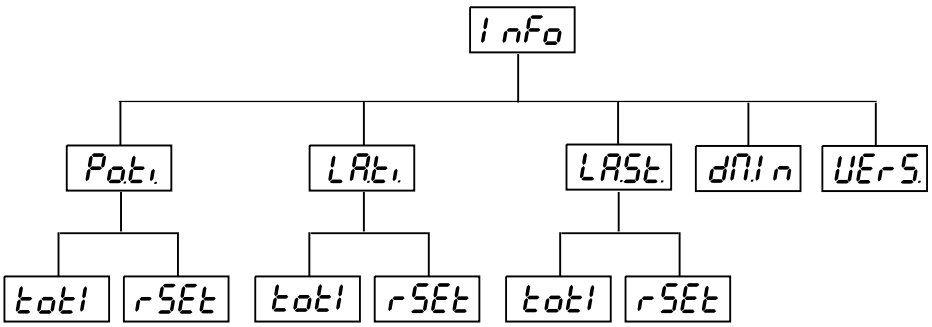
If the fixture is set as the slave and DMX signal is connected to its input,the fixture will respond to DMX signal from the controller (in dependence on the fixture's DMX address).

9.2 Slave control

This function allows you to control the slaves from the master's control panel in a master/slave operation.
Select this function from the main menu and press **[↵]**-button**.**Browse the list of all connected slaves (**"SL.C.1" - "SL.C.9"**) by pressing **[▲]** and **[▼]** bottons.Select the desired slave and press **[↵]**-button.The slave's control panel is available from the master's control panel.
If no slave is connected to the master,massages "SL.C.1","SL.C.2","SL.C3"..."SL.C.9" still round repeat.
Note: This function is available from the master fixture only.

9.3 Fixture informations

The menu allows you to read an useful information about the fixture as the lamp life,head temperature,software version, etc.
Press **[▲]** and **[▼]** buttons to select the desired option and press **[↵]** to see the value or next submenu.



Power On time

-By this option you can read the total number of the operation hours since the COLOR SPOT 150 has been fabricated. Press **[↵]** or **[↙]** to return to the menu.

- The number of the hours that the COLOR SPOT 150 has been powered On since the counter was last reset.Press **[↵]** or **[↙]** to return to the menu.In order to reset this counter to 0, you have to hold the **[▲]** and **[↵]**-button and press the **[↵]**-button.

Lamp On time

- This option enables you to read the total number of the operation hours with the lamp on since the COLOR SPOT 150 has been fabricated.Press **[↵]** or **[↙]** to return to the menu.

- The number of hours that the lamp has been powered On since the counter was last reset.Press **[↵]** or **[↙]** to return to the menu. In order to reset this counter to 0, you have to hold the **[▲]** and **[▼]**-button and press the **[↵]**-button.

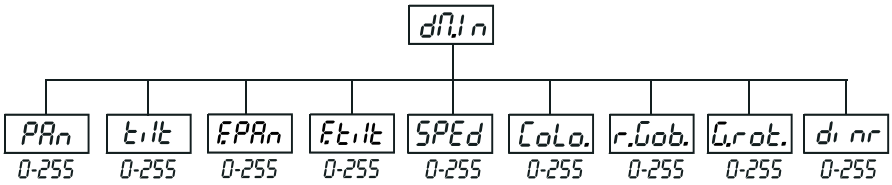
Lamp strikes

- By this option you can read the total number of the lamp strikes since the COLOR SPOT 150 has been fabricated.Press **[↵]** or **[↙]** to return to the menu.

-The number of the lamp strikes since the counter was last reset.Press **[↵]** or **[↙]** to return to the menu. In order to reset the counter to 0, you have to hold the **[▲]** and **[▼]**-button and press the **[↵]**-button.

- DMX values

Readout DMX values of each channel received by the fixture. Use the **[▲]** and **[▼]** buttons to select desired channel and press **[↵]** to read its value coming to the fixture or **[↙]** to cancel and return to the menu.

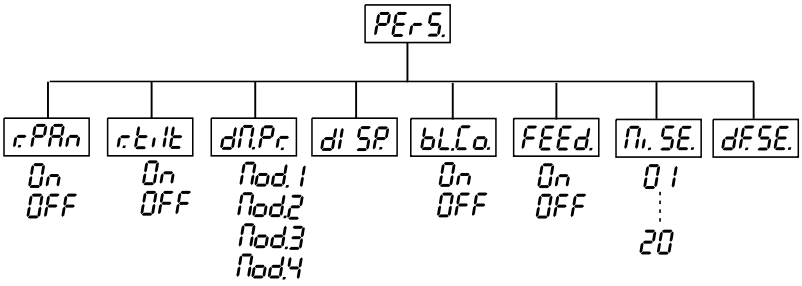


- Software version

By this function you can read the software version of the display module. Press **[↵]** to read its value or **[↙]** to return to the menu.

9.4 Personality options

These options allow you to modify COLOR SPOT 150 operating behavior.
Press **[▲]** and **[▼]**buttons to select the desired option and press **[↵]** to set the value or to see next submenu.



- Pan reverse

This function allows you to invert the pan movement. Use the **[▲]** or **[▼]** buttons to select **"On"** if you wish this feature or **"Off"** if you don't wish this feature and press **[↵]** to confirm or **[↙]** to cancel and return to the menu.

- Tilt reverse

This function allows you to invert the tilt movement. Use the **[▲]** or **[▼]** buttons to select **"On"** if you wish this feature or **"Off"** if you don't wish this feature and press **[↵]** to confirm or **[↙]** to cancel and return to the menu.

- DMX presetting

The function makes possible to select from the 4 DMX- channels settings (including 8 or 16 bit movement resolution). Use the **[▲]** or **[▼]** buttons to select desired channel settings **("Mod.1,Mod.2,Mod.3,Mod.4")** and press **[↵]** to confirm or **[↙]** to cancel and return to the menu.

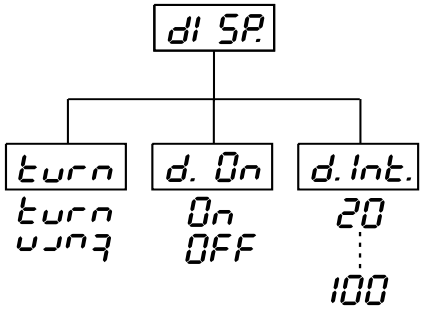
List of the channels settings:

Channel	**Mode 1**	**Mode 2**	**Mode 3**	**Mode 4**
1	Pan	Pan	Pan	Pan
2	Tilt	Fine Pan	Tilt	Tilt
3	Fine Pan	Tilt	Speed	Colours
4	Fine Tilt	Fine Tilt	Colours	R.gobos
5	Speed	Speed	R.gobos	Gobo rotation
6	Colours	Colours	Gobo rotation	Dimmer
7	R. gobos	R.gobos	Dimmer	
8	Gobo rotation	Gobo rotation		
9	Dimmer	Dimmer		

Please refer to the chapter "DMX- protocol" for detail description.
If the Mode 4 is selected,the speed of pan/tilt movement is set onto maximum.

- Display adjusting

This function allows you to adjust the display settings:



- Display -intensity

With this function you can adjust the display intensity from 20% to 100% . Use the **[▲]** or **[▼]** buttons to select the level of the display intensity and press **[↵]** to confirm or **[↙]** to cancel and return to the menu.

- Display-reverse

With this function, you can rotate the display by 180°. Use the **[▲]** or **[▼]** buttons to select "normal display" or "display turned by 180°" and press **[↵]** to confirm or **[↙]** to cancel and return to the menu.

- Display-On

This function allows you to keep the display on or to turn off automatically 2 minutes after last pressing any button on the control panel. Use the **[▲]** or **[▼]** buttons to select **"On"** if you wish to keep the display on or **"Off"** if you wish to turn off automatically 2 minutes after last pressing any button on the control panel and press **[↵]** to confirm or **[↙]** to cancel and return to the menu.

- Blackout during movement correction

The function executes the blackout during the head movement correction (the moving head has lost its right pan/ tilt-position for a short moment). Use the **[▲]** and **[▼]** buttons to select **"On"** if you want to execute the blackout or **"Off"** if you don't and press **[↵]** to confirm or **[↙]** to cancel and return to the menu.

- PAN/TILT-feedback

This function allows to return the mowing head to the required pan/tilt position after changing the position by external force (e.g.by stroke). Use the **[▲]** and **[▼]** buttons to select **"On"** if you wish to enable this function or **"Off"** if you wish not to return the mowing head to the required position and press **[↵]** to confirm or **[↙]** to cancel and return to the menu.

Note: If the feedback was switched off ,the pan/tilt-position is changed by an external force and the feedback is switched on again,the moving head might not to be synchronized with the DMX signal.You have to make a reset in order to synchronize the moving head with the DMX signal.

- Microphone -sensitivity

With this function you can adjust the microphone sensitivity from 1(maximum) to 20(minimum) . Use the **[▲]** or **[▼]** buttons to select the level of the microphone sensitivity and press **[↵]** to confirm the chosen level or **[↙]** to cancel and return to the menu.

Example:

underexited

right level
(upper segment blinks by the bass rhythm)

overexited

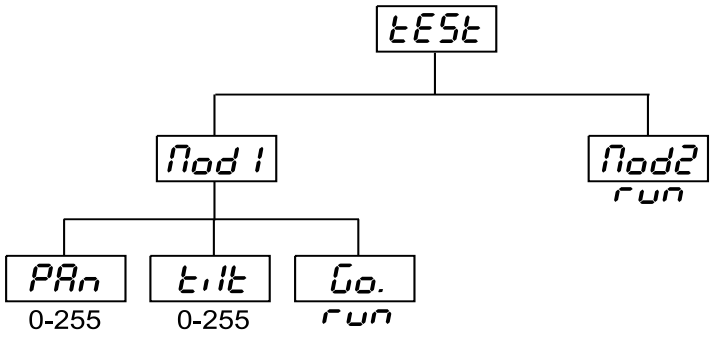
- Default settings

Press **[↵]** to reset all fixture personalities (not the adjusting functions) to the default values. On the display will appear **"rSt"** meaning that the fixture makes the reset. See the table of personality setting and their default positions.

Personality	Display	Default values (SHADED)
Pan reverse	rPAn	On OFF
Tilt reverse	rtilt	On OFF
DMX presetting	dMPr	Mod 1 Mod2 Mod3 Mod4
Blackout during mov. correction	bLCo	On OFF
Displaypermanent On	d On	On OFF
Display intensity	d Int	20 40 60 80 100
Display- reverse	turn	turn usng
Pan/Tilt feedback	FEEd	On OFF
Music trigger	Audi	On OFF
Microphone sensitivity	Mi SE	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20

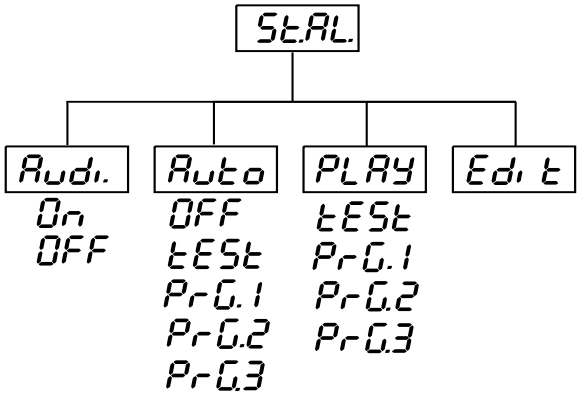
9.5 Test sequences

This function allows you to run a special demo-test sequences without an external controller, which will show you some possibilities of using COLOR SPOT 150. Press **[▲]** or **[▼]** keys to select the **"Mod1"** or **"Mod2"** sequences. The **"Mod1"** is suitable for projections on the wall, ceiling or ground without any head-movement, the **"Mod2"** uses all COLOR SPOT 150 functions and therefore is good for a complete introduction of the fixture.Select "**Mod1**" or "**Mod2**" by **[▲]** or **[▼]** buttons and press **[↵]**-button to confirm the choice.If the test program is running,messages "**run/test**" blink on the display.
If you want to pause the runnnig program in the required position, press the **[↵]-**button(messages"**PAUS**"/" **test**" blink).To continue the program running,press the **[↵]-**button again.



9.6 Stand-alone setting

This menu offers options for stand-alone mode as a selection of the playing program,programming and modifying current programs.



- Music trigger

The COLOR SPOT 150 enables the sound control of the running programs via the built-in microphone.Use the **[▲]** or **[▼]** buttons to select **"On"** if you wish this feature or **"Off"** if you don't wish this feature and press **[↵]** to confirm or **[⌿]** to cancel and return to the menu.

-**Presetting playback**

This function allows you to select the the program which will be played in the stand-alone mode after switching the fixture On.Use the **[▲]** or **[▼]** buttons to select desired program ("**tESt**"- bilt-in program) or **"OFF"** if you don't want trigger any program after switching the fixture On and press **[↵]** to confirm or **[⌿]** to cancel and return to the menu.Selected program will be played continuously in a loop as long as it appears on the display.
This option should be set "**OFF**" for all slaves in the master/slave chain by reason of the right program starts.
For example: You have selected program "**PrG.3**" in this menu and:
this fixture is set as a single fixture (master/slave or controller operating)- the fixture will run its program "**PrG.3**".
this fixture is set as a master in a data chain- the fixture will run its program "**PrG.3**".
this fixture is set as a slave in a data chain- the fixture will run its program according to the master(if the master runs its own program "**PrG.1**", the slave will run its own program "**PrG.1**"also).

Note:If the fixture operates in the controller mode (DMX controller is connected) and any program from this menu is selected ,in this case the fixture will not respond to the DMX controller after switching On and will play selected program.

- Playing program

This function allows you to run a bilt-in program **"tESt"** and the 3 freely-programmable programs **"PrG.1,PrG.2,PrG.3"** .Press **[▲]** or **[▼]** buttons to select the desired program and press **[↵]** to run the program which will be played continuously in a loop**.**
If you want to pause the runnnig program in the required position, press the **[↵]-**button(messages"**PAUS**"/" **program No**."blink).To continue the program running,press the **[↵]-**button again.
Note:If the fixture operates in the controller mode (DMX controller is connected) and any program from this function is selected in this case the fixture will not respond to the DMX controller and will play selected program. You can't play programs on the slave fixtures from their control panels if the master fixture is switched On and connected to the slaves (playing is forced by the master).

- Editing program

This menu item allows you to select a program to edit or create.The COLOR SPOT 150 has one built-in program (**"tESt"**) and the 3 free programs,each up to 99 steps.Each program step has a dynamic part(fade time) and static part(step time).
Fade time-the time,during which effects move to the programmed position.
Step time-the time,during which effects last in the current step.
If the fixture is set as a master ,then you may edit any program in the slaves.You can't edit programs on the slave fixtures from their control panels if the master fixture is switched on and connected to the slaves (editing is possible by the master control panel only).
Procedure:
1. Press **[▲]** or **[▼]-**button to select the program you want to edit ("PrG.1" - "PrG.3") and press **[↵]**.
2. Press **[▲]** or **[▼]-**button to select the desired fixture ("MASt." - "SLA.9") and press **[↵]-**button.
3. Press **[▲]** or **[▼]-**button to select the desired program step ("St.01" - "St.99") and press **[↵]-**button.
4 Press **[▲]** or **[▼]-**button to select the desired item and press **[↵]-**button.Now you can edit by **[▲]** or **[▼]** buttons the DMX value for selected item:

- **"P.End." -** a total number of the program steps,value 1-99 .**This value you must set before start programming**(e.g. if you want to create program with the 10 steps,set the value onto 10).
- **"PAn" -** a pan,value 0-255
- **"tilt" -** a tilt,value 0-255
- **"F.PAn" -** a fine pan, value 0-255
- **"F.tilt" -** a fine tilt,value 0-255
- **"SPEd" -** a speed of PAN/TILT movement,value 0-255
- **"Colo." -** a colour , value 0-255
- **"r.Gob." -** a rot.gobo,value 0-255
- **"G.rot." -** a gobo rotation,value 0-255
- **"dimr" -** a dimmer, value 0-255
- **"S.tim." -** a step time,value 0,1-25,5 seconds
- **"F.tim." -** a fade time,value 0,1-25,5 seconds
- **"COPY." -** a copying the current prog. step to the next prog. step .If the last prog.step is copied to the next prog. step ,parameter **"P.End"** is increased about 1 automatically (except step 99).

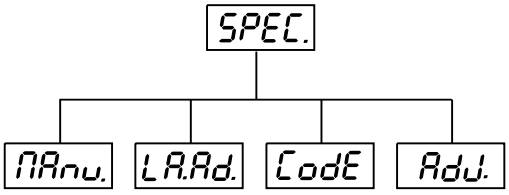
5. Press **[↵]-**button to confirm adjusted value .
6. Press **[↙]-**button,select next prog. step and repeat this procedure (steps 4 and 6).
The editting programs "PrG.1,PrG.2,PrG.3" are saved in the current modified fixture (master or slave1-9).

9.7 Reset function

Press **[↵]** button to run a reset. This option enables the COLOR SPOT 150 to index all effects (functions) and return to their standard positions.

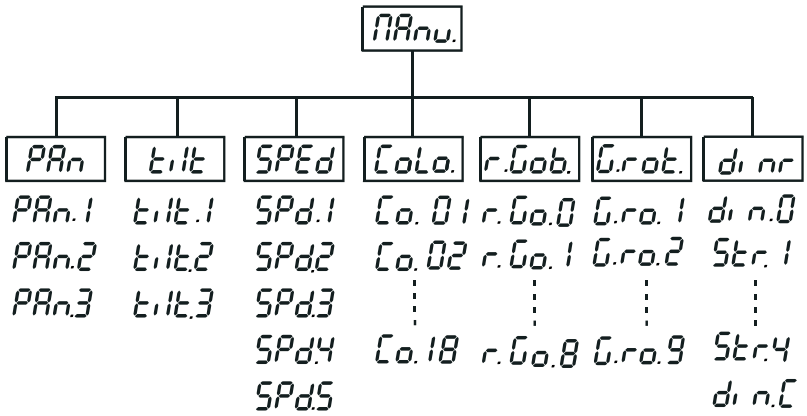
9.8 Special functions

Use the **[▲]** or **[▼]** buttons to browse through the special functions and select the one by pressing **[↵]-button**.



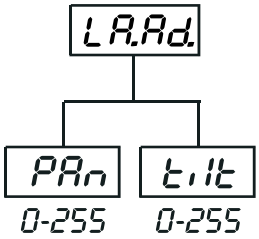
- Manual control of effects

The function allows you to control manually the channel functions of the fixture. Use the **[▲]** or **[▼]** buttons to select desired function and press **[↵]** to adjust the effect or **[↙]** to cancel and return to the menu.



- Lamp adjustment

This function can be used when you make the fine adjustment of the lamp.If you select "**LAMP**" pressing by **[↵]**-button ,all effects will be canceled,shutter will be opened and the dimmer intensity will be set onto 100%.By using the options "**PAN, TILT,**" you can focus the light on a flat surface (wall) and perform the fine lamp adjustment.

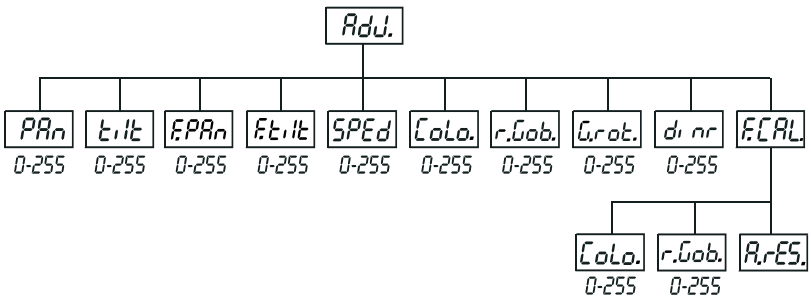


- Fixture code

The option contains identification code (1-9999) for the fixture, which is used for the master/slave operation.

- Adjusting the default positions of the colour and gobo wheels

By this function you can calibrate and adjust the colour and gobo wheels to their standard/right positions. Use the **[▲]** and **[▼]** buttons to browse through the adjusting menu - the display shows step by step these messages: **"PAn, tilt,FPAn,FTilt,SPEd,Colo,rGob,Grot, dimr, FCAL"** by which you can adjust the fixture to the required/ desired position (0-255) before the function calibration. Then when the positioning is finished use the last **"F.CAL."** function (Fixture calibration).



1. Calibration via the control panel

Press **[↵]** and the **[▲]** or **[▼]** buttons in order to display the following messages: **"Colo, rGob,"** for very smooth function calibration. Select one of them, press **[↵]** and use the **[▲]** and **[▼]** buttons in order to adjust their right value from 0 to 255. Then press **[↵]** to confirm or **[↙]** to cancel and return to the menu. This can be repeated for each calibration parameter if it is required. When the calibration is finished, it is necessary to use the **"A.rES."** function in order to write the calibration values to the memory (EPROM) and to make a reset in order to check the newly adjusted positions of the colour and gobo wheels. When the reset of the fixture is finished, the display will show the **"F.CAL."** message. Press **[↵]** to repeat the calibration or **[↙]** to return to the **"AdJ."** menu.

2. Calibration via the external controller

Connect the DMX controller, press **[↵]** and the **[▲]** or **[▼]** buttons in order to display the following messages: **"Colo, rGob,"** - calibration parameters. Select one of them and press **[↵]**.

Now you can calibrate the colour and rotating gobo wheel by your controller. The DMX calibration protocol is described in the table mentioned below.

DMX Calibration protocol:

DMX chanel	Function		
1	Colour	Smooth microstep movement	Calibration 0-255
2	Rot. gobo		Calibration 0-255
3	No function		
4	No function		
5	No function		
6	Colours	Standard protocol	
7	Rot. gobos	Standard protocol	
8	Gobo. rotation	Standard protocol	
9	Dimmer	Standard protocol	

After having calibrated required functions press **[↵]** to confirm (or **[↙]** to cancel and return to the menu without reset by the **"A.rES."** function) and use the **"A.rES."** function in order to write the calibration values to the memory (EEPROM) and to make a reset in order to check the new adjusted positions of the colour and gobo wheels.

10. Error and information messages

M.b.Er.

This messsage informs you that the main PCB does not communicate correctly with the Control Panel.

Co.Er.

(Colour -wheel error)This messsage will appear after the reset of the fixture if the magnetic-indexing circuit malfunctions (sensor failed or magnet missing) or the stepping-motor is defective (or its driver circuit on the main PCB). The color-wheel is not located in the default position after the reset.

r.GEr.

(Rotating gobo-wheel error) This message will appear after the reset of the fixture if the magnetic-indexing circuit malfunctions (sensor failed or magnet missing) or the stepping-motor is defective (or its driver circuit on the main PCB). The rotating gobo-wheel is not located in the default position after the reset.

Po.Er.

This message will appear if the fixture was shortly disconnect from the main.

PA.Er.

(Pan-yoke movement error) This message will appear after the reset of the fixture if the yoke's magnetic-indexing circuits malfunction (sensors failed or magnet missing) or the stepping motor is defective. (Or its driving IC on the

main PCB). The yoke is not located in the default position after the reset.

ti.Er.

(TILT-head movement error) This message will appear after the reset of the fixture if the head's magnetic-indexing circuit malfunctions (sensor failed or magnet missing) or the stepping motor is defective. (Or its driving IC on the main PCB). The head is not located in the default position after the reset.

MA.Er.

(Master error) The message informs you that the fixture was addressed as a master and DMX signal is connected to its input.Disconnect the DMX controller from fixture's input and address the fixture as the master again.

11.Technical specifications

Power supply:

Voltage:	100/115/208/230/240V AC, 50/60Hz ~
Fuse:	T 5,0A @ 115V
Power consumption:	300 VA

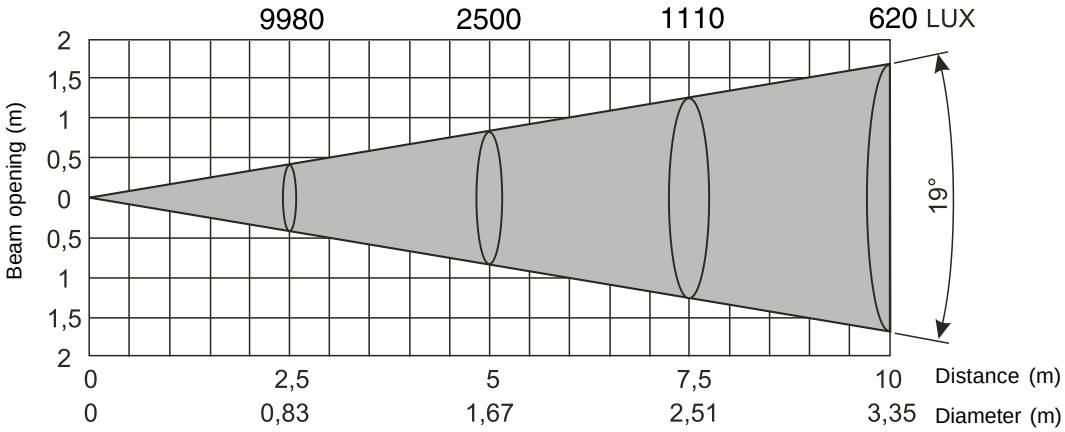
Lamp:

CDM-SA/T 150/942 , base G12

Optical System:

- High luminous-efficiency parabolic system and 3 elements- objective
-All lenses are anti-reflection coated
-19° beam angle

Beampath:



Colours:

- 11 dichroic-filters plus white
- Colour-wheel with variable rotation speed

Rotating gobos:

-3 metal gobos, 3 glass gobos and 1 dichroic gobo rotating in both directions at different speeds
- Gobo rotation
- Rotating gobo-wheel cont. rotation
- Metal gobos: outside diameter 27 mm, image diameter 22,5 mm
-Glass and dichroic gobos:outside diameter 26,8 mm, image diameter 22,5 mm
-All gobos are interchangeable

Focus:

- 19°-wide angle objective with the manual focus

Strobe:

- Strobe effect with variable speed (1 - 10 flashes per second)

Shutter/Dimmer:

- Simple dimmer from 0 - 100 %

Motors:

- 5 high quality stepping-motors controlled by microprocessors

Fans:

- Two axial fans - one in the projector head and one in the base.

Electronics:

- built-in microphone
- Digital serial input DMX-512
- 4 DMX channel-presettings (8 or 16 bit protocols):

Channel	Mode 1	Mode 2	Mode 3	Mode 4
1	Pan	Pan	Pan	Pan
2	Tilt	Fine Pan	Tilt	Tilt
3	Fine Pan	Tilt	Speed	Colours
4	Fine Tilt	Fine Tilt	Colours	Rot.gobos
5	Speed	Speed	Rot. gobos	Gobo rotation
6	Colours	Colours	Gobo rotation	Dimmer
7	Rot. gobos	Rot. gobos	Dimmer	
8	Gobo rotation	Gobo rotation		
9	Dimmer	Dimmer		

Pan/Tilt:

-Pan movement range 530°
-Tilt movement range 280°
-Automatic Pan / Tilt position correction
-Maximum PAN-movement 530° in 3.0 s
-Maximum TILT-movement 280° in 1.9 s

Rigging:

-Stands directly on the floor
-Mounts horizontally or vertically with 2 clamps
-2 truss orientation
-Safety chain/cord attachment point

Temperatures:

-Maximum ambient temperature t_a: 40° C
-Maximum housing temperature t_B (steady state): 80° C

Minimum distances:

-Min.distance from flammable surfaces: 0,4m
-Min.distance to lighted object: 0,8m

Dimensions:

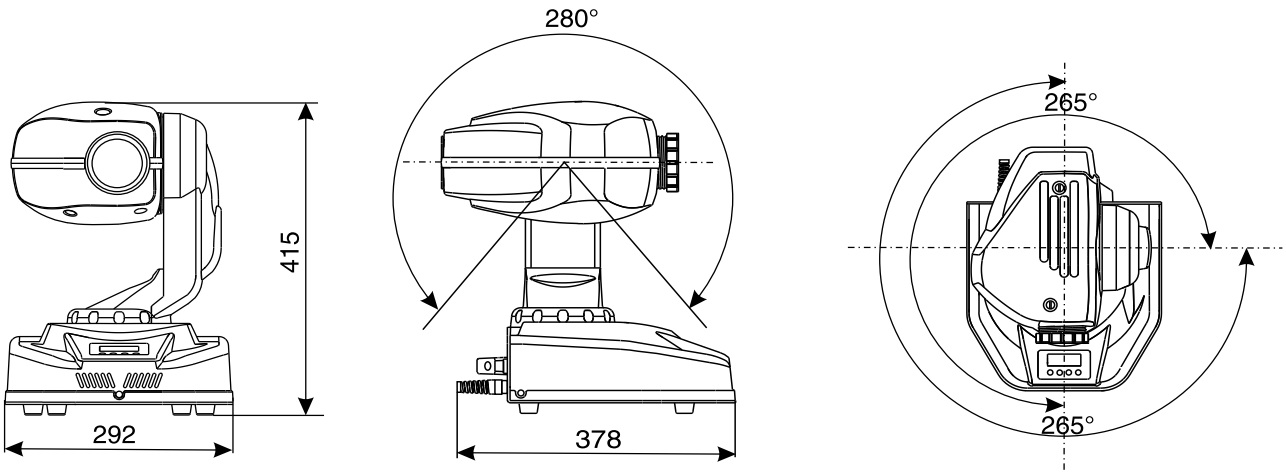
-Width: 292 mm
-Length of base :378 mm
-Height (head horizontal):415 mm

Weight (net):

12,5 kg

Shipping weight:

18,5 kg



12. Maintenance and cleaning

The operator has to make sure that safety-relating and machine-technical installations are inspected by an expert after every four years in the course of an acceptance test.

The operator has to make sure that safety-relating and machine-technical installations are inspected by a skilled person once a year.

The following points have to be considered during the inspection:

1) All screws used for installing the devices or parts of the device have to be tighly connected and must not be corroded.
2) There must not be any deformations on housings, fixations and installation spots (ceiling, suspension, trussing).
3) Mechanically moved parts like axles, eyes and others must not show any traces of wearing (e.g. material abrading or damages) and must not rotate with unbalances.
4) The electric power supply cables must not show any damages, material fatigue (e.g. porous cables) or sediments. Further instructions depending on the installation spot and usage have to be adhered by a skilled installer and any safety problems have to be removed.

DANGER TO LIFE !
Disconnect from the mains before starting maintenance operation!

It is absolutely essential that the fixture is kept clean and that dust, dirt and smoke-fluid residues must not build up on or within the fixture. Otherwise, the fixture‘s light-output will be significantly reduced. Regular cleaning will not only ensure the maximum light-output, but will also allow the fixture to function reliably throughout its life.

Please use a moist, lint-free cloth. Never use alcohol or solvents!

The front objective lens will require weekly cleaning as smoke-fluid tends to building up residues, reducing the light-output very quickly. The cooling-fans should be cleaned monthly.

The gobos may be cleaned with a soft brush. The interior of the fixture should be cleaned at least annually using a vacuum-cleaner or an air-jet.

The dichroic colour-filters, the gobo-wheel and the internal lenses should be cleaned monthly.
To ensure a proper function of the gobo-wheel we recommend lubrication in six month intervals. The quantity of oil must not be excessive in order to avoid that oil runs out when the gobo-wheel rotates.

There are no serviceable parts inside the device except for the lamp and the fuse. Maintenance and service

operations are only to be carried out by authorized dealers.
Please refer to the instructions under "Fitting/Exchanging the lamp".

Replacing the fuse

If the lamp burns out, the fine-wire fuse of the device might fuse, too. Only replace the fuse by a fuse of same type and rating.

Before replacing the fuse, unplug mains lead.
Procedure:
Step 1: Unscrew the fuseholder on the rear panel of the base with a fitting screwdriver from the housing (anti-clockwise).
Step 2: Remove the old fuse from the fuseholder.
Step 3: Install the new fuse in the fuseholder.
Step 4: Replace the fuseholder in the housing and fix it.

Should you need any spare parts, please use genuine parts.
If the power supply cable of this device will be damaged (cable firmly connected with the device), it has to be replaced by authorized dealers only in order to avoid hazards.
If the power supply cable of this device will be damaged (replaceable cable), it has to be replaced by a special power supply cable available at your dealer.

Should you have further questions, please contact your dealer.

13. Appendix

We hope you will enjoy your COLOR SPOT 150. We can assure you that you will enjoy this device for years if you follow the instructions given in this manual.

Should you have further questions, do not hesitate to contact your local dealer.

Please note: Every information is subject to change without prior notice.